

# MAPS Cost & Schedule Workfest

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## sPHENIX MAPS Cost & Schedule Workfest

from 30 March 2016 to 01 April 2016 (US/Mountain) *El Dorado Hotel*  
US/Mountain timezone

  
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### Overview

Timetable

Contribution List

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Registration

Registration Form

List of registrants

The purpose of this 3 day workfest is to define and document the cost and schedule for the MAPS based tracking options under consideration for the sPHENIX detector. The interactive workfest format will be organized into topical breakout teams with MAPS, engineering, and C&S experts we are gathering from ALICE, sPHENIX, and other projects and will minimize time spent in presentations.

Update 3/2/16: The workfest will be held at the El Dorado Hotel. The hotel is located just a short walk west of the historic downtown square. See <http://www.eldoradohotel.com> for more hotel details. We've arranged for a block of rooms is available now and can be booked at the workfest/gov't rate (\$99/night) if you follow: [https://gc.synxis.com/rez.aspx?Hotel=63150&Chain=17123&Dest=Santa Fe &template=GCF&shell=GCF&locale=en-US&arrive=3/29/2016&depart=4/1/2016&adult=1&child=0&group=sPHENIX](https://gc.synxis.com/rez.aspx?Hotel=63150&Chain=17123&Dest=Santa%20Fe%20&template=GCF&shell=GCF&locale=en-US&arrive=3/29/2016&depart=4/1/2016&adult=1&child=0&group=sPHENIX) which will lead you to a web form for the conference. If you decide to call the hotel directly at 505-995-4500, our call-in/group code for the reservations is: sPHENIX.

✉ Organizers

FAQ: *Should I fly out of ABQ on Friday evening or Saturday morning?*

The answer to this is if you can find a suitable flight or not. We expect that some participants will book flights out Friday evening and leave the workfest in the afternoon to take those flights. Not all participants will find a flight and so Saturday morning will be an option for them. Our plan is to be finalizing the C&S document on Friday afternoon. The organizers will stay until the end of the day and go to dinner with the remaining participants. The drive from Santa Fe to the airport (ABQ) will take approximately 1 hour.

**Dates:** from 30 March 2016 09:00 to 01 April 2016 17:30

**Timezone:** US/Mountain

# Draft Cost & Schedule Document

1	<b>1</b>	<b>▲ sPIT Project</b>	<b>1054 days</b>	<b>Mon 10/3/16</b>	<b>Thu 10/15/20</b>	<b>\$3,061,898.18</b>	
2	1.1	Start Construction (CD-3)	1 day	Mon 11/13/17	Mon 11/13/17	\$0.00	
3	1.2	ALICE Inner Barrel Construction	261 days	Mon 1/2/17	Mon 1/1/18	\$0.00	
4	1.3	Start R&D LANL	1 day	Mon 10/3/16	Mon 10/3/16	\$0.00	
5	1.4	Start R&D Other Institutions	1 day	Mon 10/3/16	Mon 10/3/16	\$0.00	
6	<b>1.5</b>	<b>▲ Project Management</b>	<b>815 days</b>	<b>Fri 10/14/16</b>	<b>Fri 11/29/19</b>	<b>\$147,200.00</b>	
7	1.5.1	Project Manager	800 days	Fri 10/14/16	Fri 11/8/19	\$0.00	
8	1.5.2	Mechanical Liason Engineer	800 days	Fri 11/4/16	Fri 11/29/19	\$73,600.00	
9	1.5.3	Electronics Liason Engineer	800 days	Fri 11/4/16	Fri 11/29/19	\$73,600.00	
10	<b>1.6</b>	<b>▲ Design &amp; Prototyping</b>	<b>276 days</b>	<b>Mon 10/3/16</b>	<b>Mon 10/23/17</b>	<b>\$669,818.18</b>	
11	<b>1.6.1</b>	▷ Readout Test Stand	26 days	Mon 10/3/16	Mon 11/7/16	\$34,800.00	
15	<b>1.6.2</b>	▷ Staves	45 days	Mon 2/27/17	Fri 4/28/17	\$61,400.00	
18	<b>1.6.3</b>	▷ Readout Electronics	223 days	Mon 10/3/16	Wed 8/9/17	\$130,018.18	
35	<b>1.6.4</b>	▷ Ancillary	60 days	Tue 10/18/16	Mon 1/9/17	\$56,200.00	
39	<b>1.6.5</b>	▷ Mechanics	276 days	Mon 10/3/16	Mon 10/23/17	\$387,400.00	
65	<b>1.7</b>	▷ Prototype Assembly	40 days	Thu 3/9/17	<u>Wed 5/3/17</u>	\$20,800.00	
69	1.8	Test Beam Operation	3 wks	Thu 10/5/17	Wed 10/25/17	\$0.00	
70	<b>1.9</b>	▷ sPIT-DOE Final Review	14 days	Tue 10/24/17	Fri 11/10/17	\$52,000.00	
<b>74</b>	<b>1.10</b>	<b>▲ Procurements</b>	<b>519 days</b>	<b>Mon 11/13/17</b>	<b>Thu 11/7/19</b>	<b>\$2,008,480.00</b>	
75	1.10.1	Procure 58 Inner Staves	120 days	Mon 1/1/18	Fri 6/15/18	\$823,400.00	
76	1.10.2	Procure 100 SamTec Cables	2 mons	Mon 11/13/17	Fri 1/5/18	\$39,800.00	
77	1.10.3	Procure 58 Readout Units	2 mons	Mon 1/8/18	Fri 3/2/18	\$287,800.00	
78	1.10.4	Procure Optical Links	2 mons	Mon 3/5/18	Fri 4/27/18	\$48,800.00	
79	1.10.5	Procure 29 Common Readout Units	2 mons	Mon 4/30/18	Fri 6/22/18	\$167,800.00	
80	1.10.6	Procure Ancillary Materials	2 mons	Mon 6/25/18	Fri 8/17/18	\$72,800.00	
81	1.10.7	Procure Cooling Plant	2 mons	Mon 8/20/18	Fri 10/12/18	\$129,800.00	
82	1.10.8	Procure assembly fixtures & jigs	60 days	Mon 10/15/18	Fri 1/4/19	\$119,200.00	
83	1.10.9	Procure end wheels	64 days	Mon 1/7/19	Thu 4/4/19	\$54,480.00	
84	1.10.10	Procure Cylindrical structural Shells	14 days	Fri 4/5/19	Wed 4/24/19	\$15,480.00	
85	1.10.11	Procure Detector Half Barrels	14 days	Thu 4/25/19	Tue 5/14/19	\$17,480.00	
86	1.10.12	Procure Service Half Barrels	32 days	Wed 5/15/19	Thu 6/27/19	\$130,240.00	
87	1.10.13	Procure Detector and Service Half Barrels	15 days	Fri 6/28/19	Thu 7/18/19	\$25,800.00	
88	1.10.14	Procure Two Half Support Structures	4 mons	Fri 7/19/19	Thu 11/7/19	\$75,600.00	
89	<b>1.11</b>	▷ Assembly and Testing	<b>205 days</b>	<b>Fri 11/8/19</b>	<b>Thu 8/20/20</b>	<b>\$99,600.00</b>	
96	1.12	Installation	2 mons	Fri 8/21/20	Thu 10/15/20	\$64,000.00	



# Draft Cost & Schedule Document

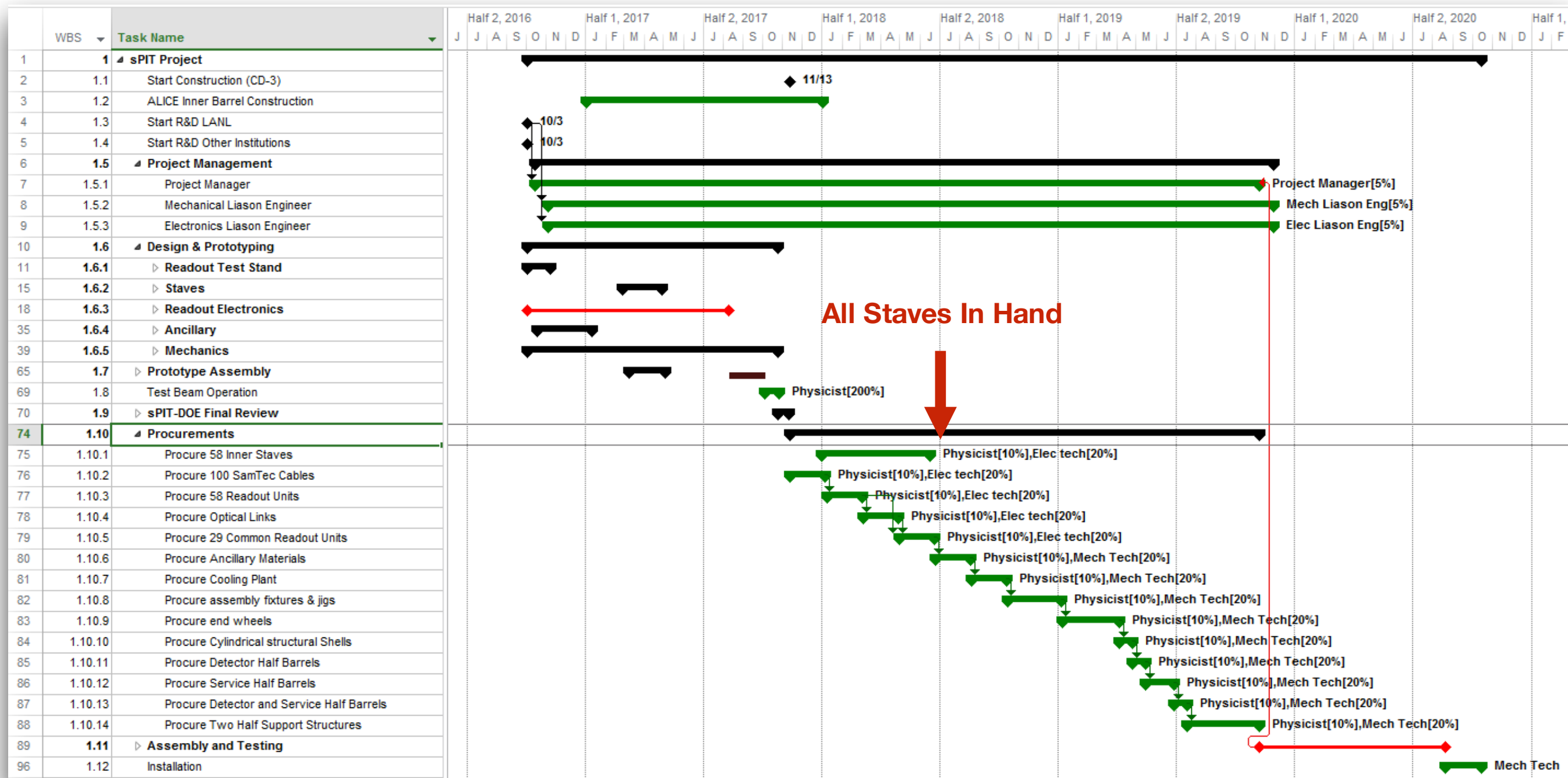
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~\$3-4M

~\$2-3M

Draft + 1M for items not yet included

# But Will Require Further Updates



Parallelize procurements (detector hardware, mechanics & servicing)

Add more time for R&D on readout

Contingency for custom readout boards

Finish loading document (will have to happen after DR proposal)

**Will be have to be done by Tracking Review**

# Known Project File To Do Items

## Includes Ed's Guidance from April Meeting

### Formatting:

- (1) Standardize sPHENIX categories
- (2) insert CD-N dates
- (3) insert reviews: r&d / production / safety
- (4) insert milestones: 0-day, (ex: review prep, pass review)
- ~~(5) all durations in days~~

### Task List:

- ~~(1) Add in development of FEM readout board~~
- (2) Add ALICE ITS in-kind (+\$100-200K, mortgaged)**
- (3) Production Line Care Taker**
- (4) Breakout Stave Construction**

### Cost:

- ~~(1) Breakout costs “direct” and “burdened”~~
- ~~(2) Remove contingency estimates~~

# Known Project File To Do Items

## Resource Loading:

- (1) finalize labor estimates (made progress)**
- (2) L2 Managers commit 0.5 FTE
- (3) use common resource sheet

## Schedule:

- (1) revise linking (made progress)**
- (2) standardize large procurement lead times
- (3) standardize to sPHENIX holiday calendar

**New things from today's discussions...**

We have a close eye on these issues as we plan this summer:

## **(1) Mating the ALICE and sPHENIX schedules**

Problem: ~3/4 year gap between ITS and CD-3

Strategy: train experts in-situ, maintain production line at low effort, & ramp back up

## **(2) Long Development Time for Readout Electronics**

Problem: Full custom board design may be required

Strategy: Early review of options, early start on design if full custom boards are needed.

Plan-B: Readout one stave with prototype electronics as proof-of-principle for technical review

Let's open the MS Project File...